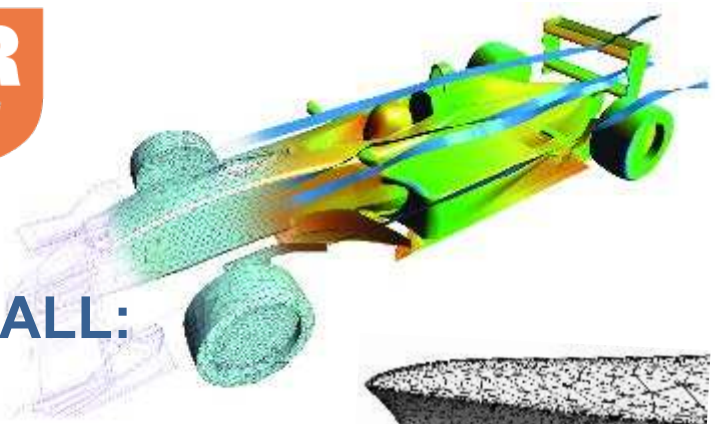
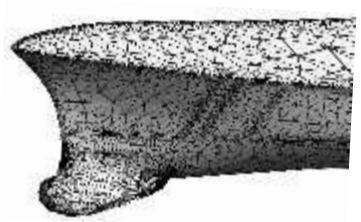
1987-2017

CIMNE



EXCELLENT SCIENCE WITH AND FOR ALL: THE CASE OF CIMNE

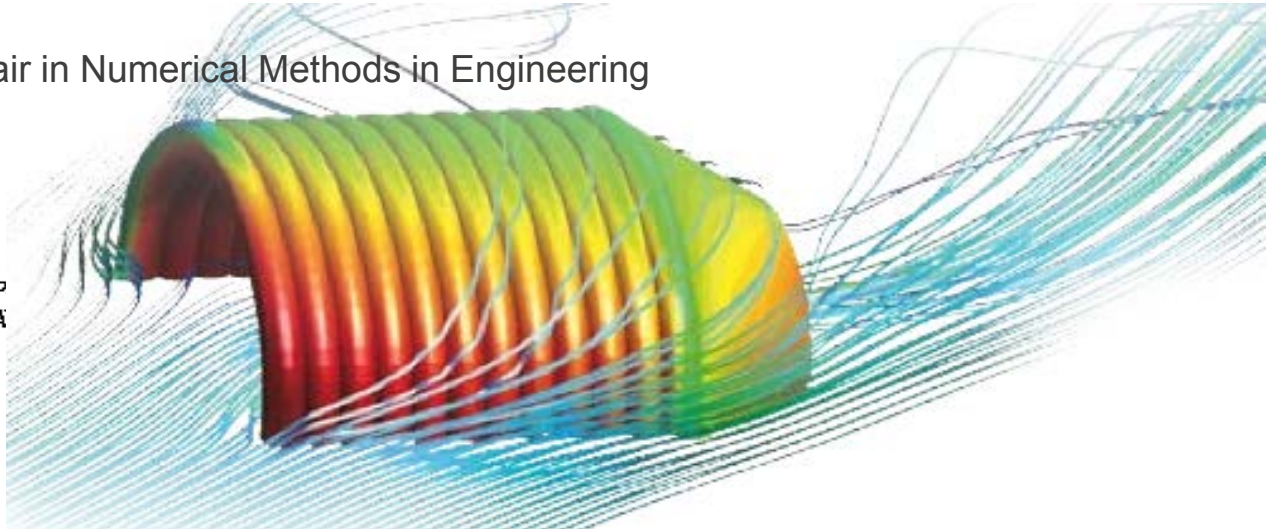


Cecilia Soriano

PhD Physics

Research Manager

Coordinator of the UNESCO Chair in Numerical Methods in Engineering



Organització de les Nacions Unides per a la Educació

Universitat P BARCELONA

Càtedra UNESCO de Mètodes Numèrics en Enginyeria

Columbus

PROGRAMA SOBRE CIENCIA ABIERTA Y GESTIÓN DE DATOS DE INVESTIGACIÓN

Barcelona, Spain, 3th July 2018

OUTLINE

- CIMNE
- WE ARE COMPUTATIONAL ENGINEERING / MECHANICS
  - Where can I meet my colleagues?
  - Where can I publish my research?
  - How can we make our discipline strong?
  - How our codes / solvers can have a higher impact?

- How can we make all our knowledge available to the world?

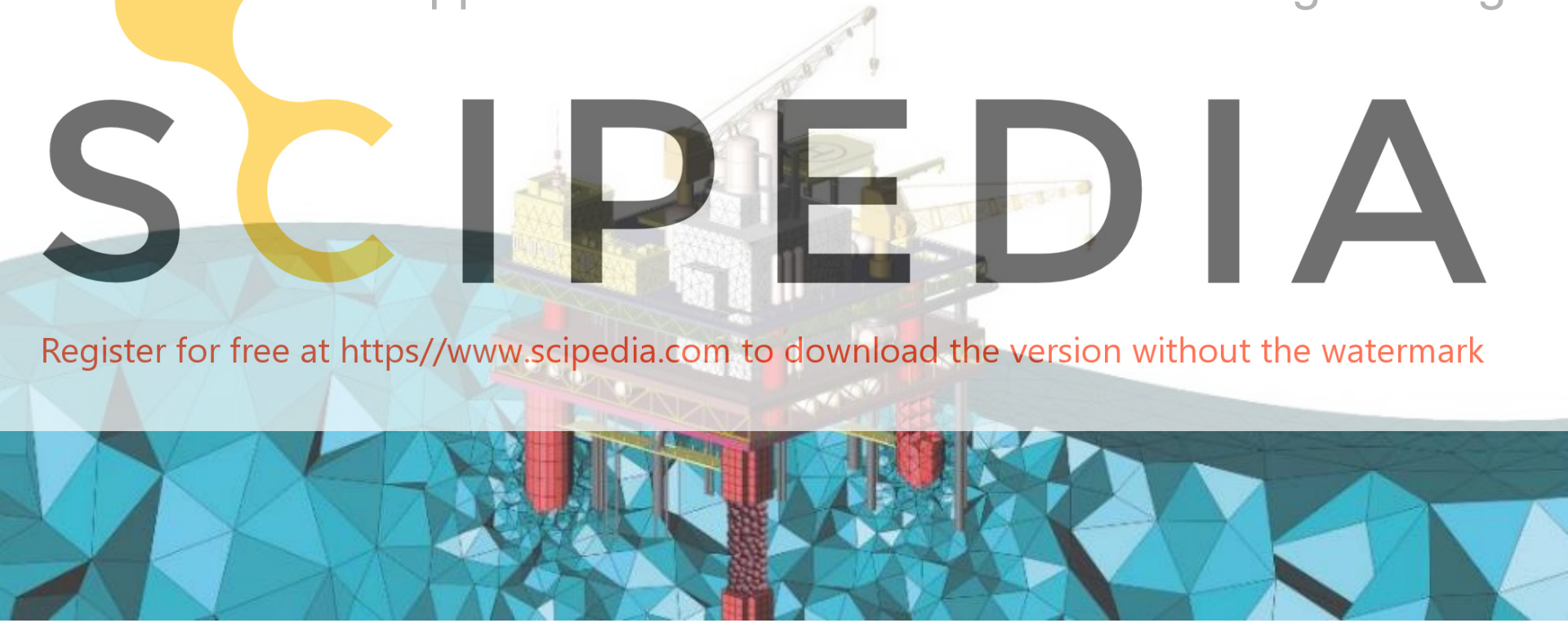
- **OUR OPEN SCIENCE PLATFORM** SCIPEDIA

CIMNE

CIMNE

Public R+D center in computational mechanics

created in 1987, with a strong focus on research, knowledge transfer, dissemination and application of numerical methods in engineering.



SCIPEDIA

A Consortium of: Generalitat de Catalunya; UNIVERSITAT POLITÈCNICA DE CATALUNYA BARCELONATECH

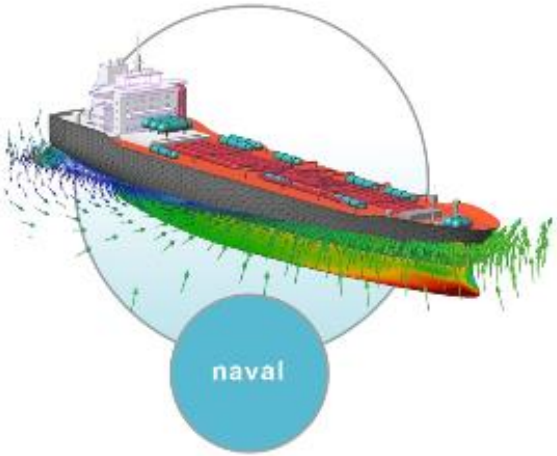
In cooperation with: UNESCO

CIMNE

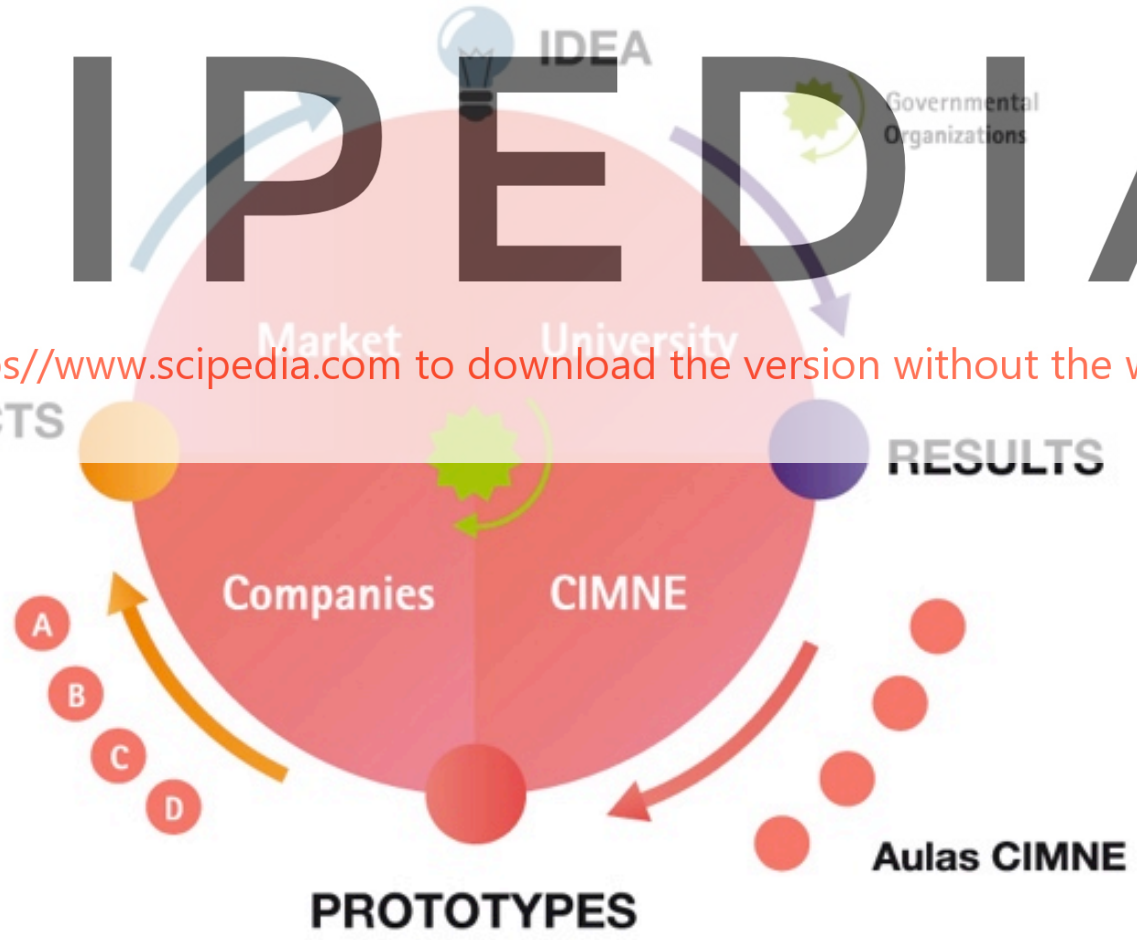
OUR MISSION

Research | Education | Dissemination | Technology Transfer

IN THE FIELD OF COMPUTATIONAL ENGINEERING



FROM THE IDEA TO THE MARKET

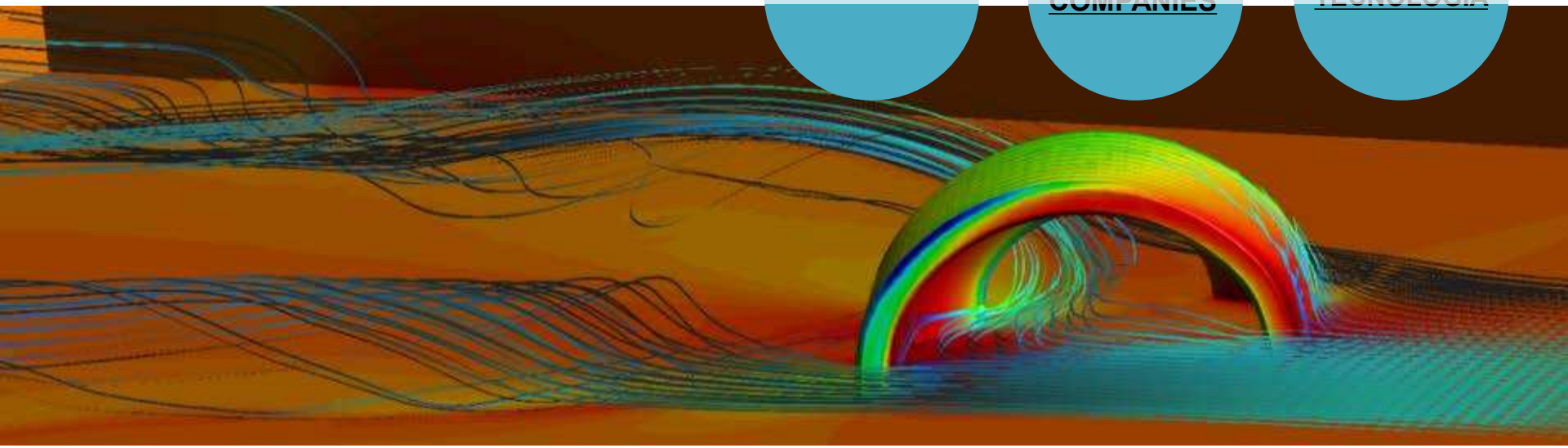


CIMNE

TECHNOLOGY TRANSFER

- A vocation for Technology Transfer since 1987.
- Creation of CIMNE Tecnología, SA. (2011), a company 100% owned by CIMNE, in charge of the technology transfer of CIMNE outputs.
- 16 spin-off companies.

PRODUCTS | SPIN-OFF COMPANIES | CIMNE TECNOLOGÍA



16 SPIN-OFF COMPANIES

BEFORE 2011

Created in 2001

SOLUCIONES INTEGRALES DE FORMACIÓN Y GESTIÓN STRUCTURALIA, SA

E-Training and consulting activities in civil engineering. It was sold in 2011 to The Washington Post Group.

Created in 2002

COMPASS INGENIERÍA Y SISTEMAS, SA

Applications of numerical methods in civil, naval and maritime engineering. CIMNE owns 24% of COMPASS.

Created in 2006

INGENIA IAE

It promotes the participation of its members in projects of aeronautics and the space field. It is formed by several companies and CIMNE.

CIMNE TECNOLOGÍA

Created in 2011, the company is owned by CIMNE aiming to industrialize and market the outputs of CIMNE research.

BIOMECHANICS DEVELOPMENTS, SL

Software solutions and services in biomedical field. *50% owned by CIMNE Tecnología.*

BUILDAIR INGENIERÍA Y ARQUITECTURA, SA

Inflatables structures for engineering and architecture applications. *5% owned by CIMNE Tecnología.*

COMPUTATIONAL AND INFORMATION TECHNOLOGIES, SA

Computational methods and information technology systems in engineering. *100% owned by CIMNE Tecnología.*

FRESH WATER NATURE, SL

Solutions for obtaining fresh water from desalination and destillation of waste water. *100% owned by CIMNE Tecnología.*

HEALTHAPP, SL

Software to treat eating disorders. It improves the links therapist / patient. *15% owned by CIMNE Tecnología.*

RSM GASSÓ CIMNE ENERGY, SL

Advanced engineering energy services. 50% owned by Servicios Energéticos Avanzados, which is *100% owned by CIMNE Tecnología.*

INLOC ROBOTICS, SL

Positioning and navigation solutions for mobile robots in buried environments. *5% owned by CIMNE Tecnología since 2015.*

LYNCOS TECHNOLOGIES, SL

Software and systems for the Internet of Things. *15% owned by CIMNE Tecnología.*

PORTABLE MULTIMEDIA SOLUTIONS, SL

Mobile pavilions with multimedia technology for leisure, sport and events. *20% owned by CIMNE Tecnología.*

PNEUMATIC STRUCTURES TECHNOLOGIES, SL

Pneumatic structures for a wide range of engineering problems. *10% owned by CIMNE Tecnología.*

QUANTECH ATZ

Software for production processes. CIMNE Tecnología joined the company in 2015, with a *share of 3,5%*.

SCIPEDIA, SL

Free publishing and open access for scientific publications. *16,67% owned by CIMNE Tecnología.*

TECNOLOGÍAS AVANZADAS PARA EL OCIO, SL

Information systems for leisure sectors (tourism, music…). *100% owned by CIMNE Tecnología.*

CIMNE tecnología s.a.

CIMNE IN NUMBERS

ACTIVITIES	2016
Postgraduate Studies	4
Conferences	4
Seminars	23
Courses	9
Coffee Talks	11
Publications	118
Books	1
Monographs	15
Research Reports	1
Papers in Journals	101
Spin-off Companies	16
Aulas CIMNE	30
Patents	0 (5)
Contracts with Industry	56 (98)
Competitive Projects	26 (86)
National Projects	13 (40)
International Projects	13 (46)

In brackets, the total number of on-going contracts and RTD projects.

STAFF / POSITION TITLE	2016
Management Staff	3
Administration Staff	39
Research Staff	95
Full Research Professors	29
Associate Research Professors	15
Assistant Research Professors	12
Staff Scientists	7
Post Docs	32
Research Engineers	68
Research Students	95
PhD Students	62
Master Students	30
Ungraduate Students	3
TOTAL Staff	295

About 200 scientists work at CIMNE.

CIMNE IN THE WORLD

Universidad de Carabobo
AULA UC
Venezuela

Universidad Centroccidental "Lisandro Alvaro"
AULA UCLA
Venezuela

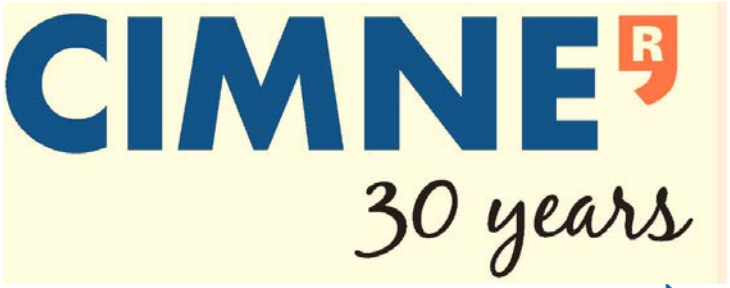
30 AULAS CIMNE
in Spain and Latin America

Argentina	●●●●●●	Guatemala	●
Brazil	●●●	Mexico	●●●●
Chile	●	Peru	●
Colombia	●●	Spain	●●●●●●
Cuba	●●	Venezuela	●●●
El Salvador	●		

Red Aulas CIMNE

CIMNE

WE ARE COMPUTATIONAL ENGINEERING / MECHANICS



1987 → **2018**

CIMNE

Where can I meet my colleagues?

INTERNATIONAL CONFERENCES
CIMNE CONGRESS BUREAU 2017/2018
http://congress.cimne.com/web/

ECCOMAS CONFERENCES 2017

MARINE	CM3	SMART	COUPLED PROBLEMS	ADMOS	COMPLAS	IGA	PARTICLES	STRUCTURAL MEMBRANES
14/17 May 2017	22/24 May 2017	5/8 June 2017	12/14 June 2017	26/28 June 2017	5/7 Sept. 2017	11/13 Sept. 2017	26/28 Sept. 2017	9/11 Oct 2017

OTHER INTERNATIONAL CONFERENCES AND WORKSHOPS

CIMNE

How can we make our discipline strong?

SCIENTIFIC SOCIETIES

Sociedad Española de Métodos Numéricos en Ingeniería

CIMNE holds the General Secretariat of the Spanish Association for Numerical Methods in Engineering.

International Association For Computational Mechanics

CIMNE holds the General Secretariat of the International Association for Computational Mechanics.

European Community on Computational Methods in Applied Sciences

CIMNE holds the Secretariat of the European Community on Computational Methods in Applied Sciences.

European Research Community On Flow, Turbulence And Combustion

CIMNE is a Pilot Centre for the European Research Community in Flow, Turbulence and Combustion. ERCOFTAC Spanish Pilot Centre.

International Association of CIMNE Classrooms

The International Association of CIMNE Classrooms is a non-governmental civil non-profit organization which aims to promote the advancement of numerical methods in a common academic space.

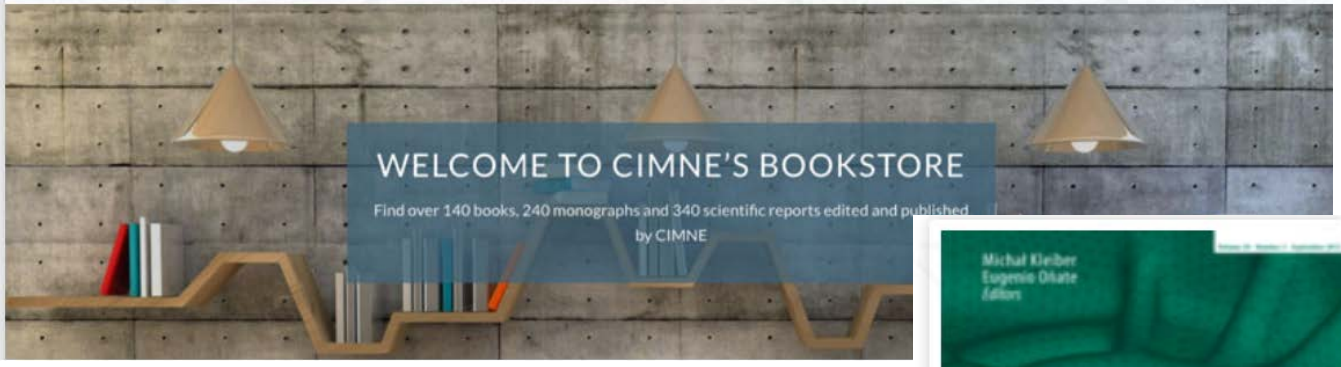
CIMNE

Where can I publish my research?

PUBLICATIONS

BOOKS, JOURNALS, MONOGRAPHS, SCIENTIFIC REPORTS AND EDUCATIONAL SOFTWARE ,

CIMNE, with a long tradition as a book publisher, goes one step further in its quest for scientific outreach and has launched its own bookstore. From CIMNE bookstore it can be purchased books, monographs, scientific reports and educational software on the theory and applications of numerical methods in engineering and applied sciences.



Archives of Computational Methods in Engineering

Revista Internacional Médos Numéricos para Cálculo y Diseño en Ingeniería

CIMNE

How our codes / solvers can have a higher impact?

OPEN-SOURCE

KRATOS MULTI-PHYSICS

http://www.cimne.com/kratos/

Open Source, Parallel, Multi-physics, CFD, Thermal problems, Structural dynamics, Flexibility, Particle Problems, Linear Solvers Libraries...

Visit our GitHub project

CIMNE

How can we make all our knowledge available to the world?

OUR OPEN SCIENCE PLATFORM

SCIPEDIA

Your Open Science and
Research Publishing Platform

SCIPEDIA

Scipedia is an innovative Open Science platform that essentially integrates an advanced online publishing and data management platform with a collaborative social network for researchers and scientific institutions

https://www.scipedia.com

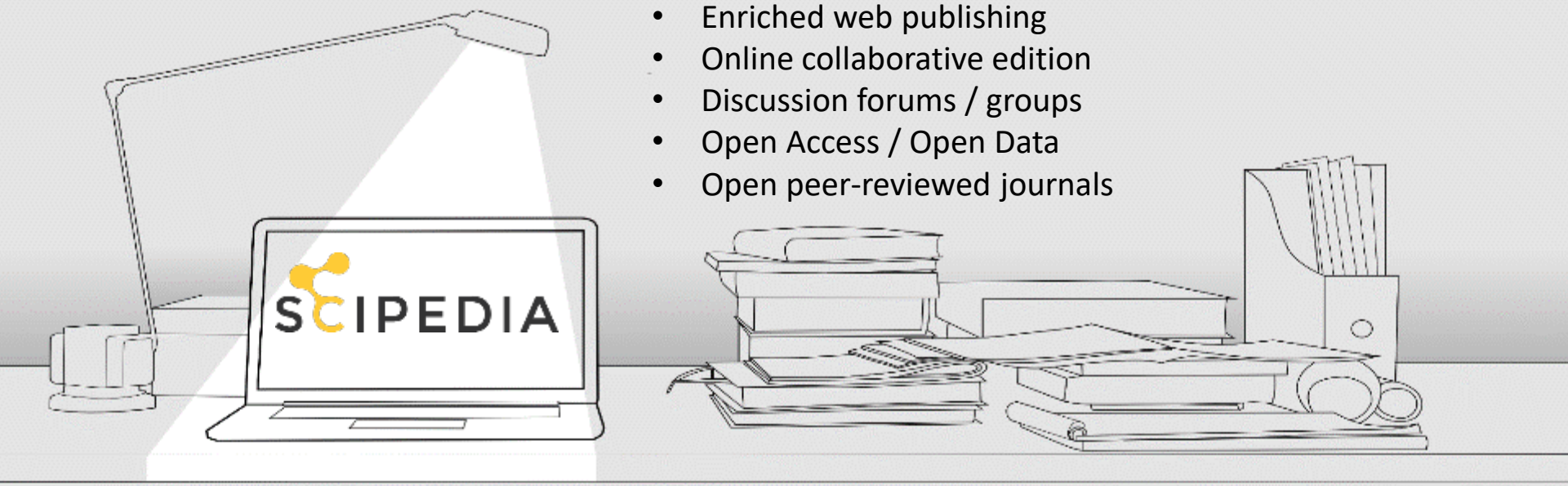
What can Scipedia offer …

… to researchers?

… to Open Access journals?

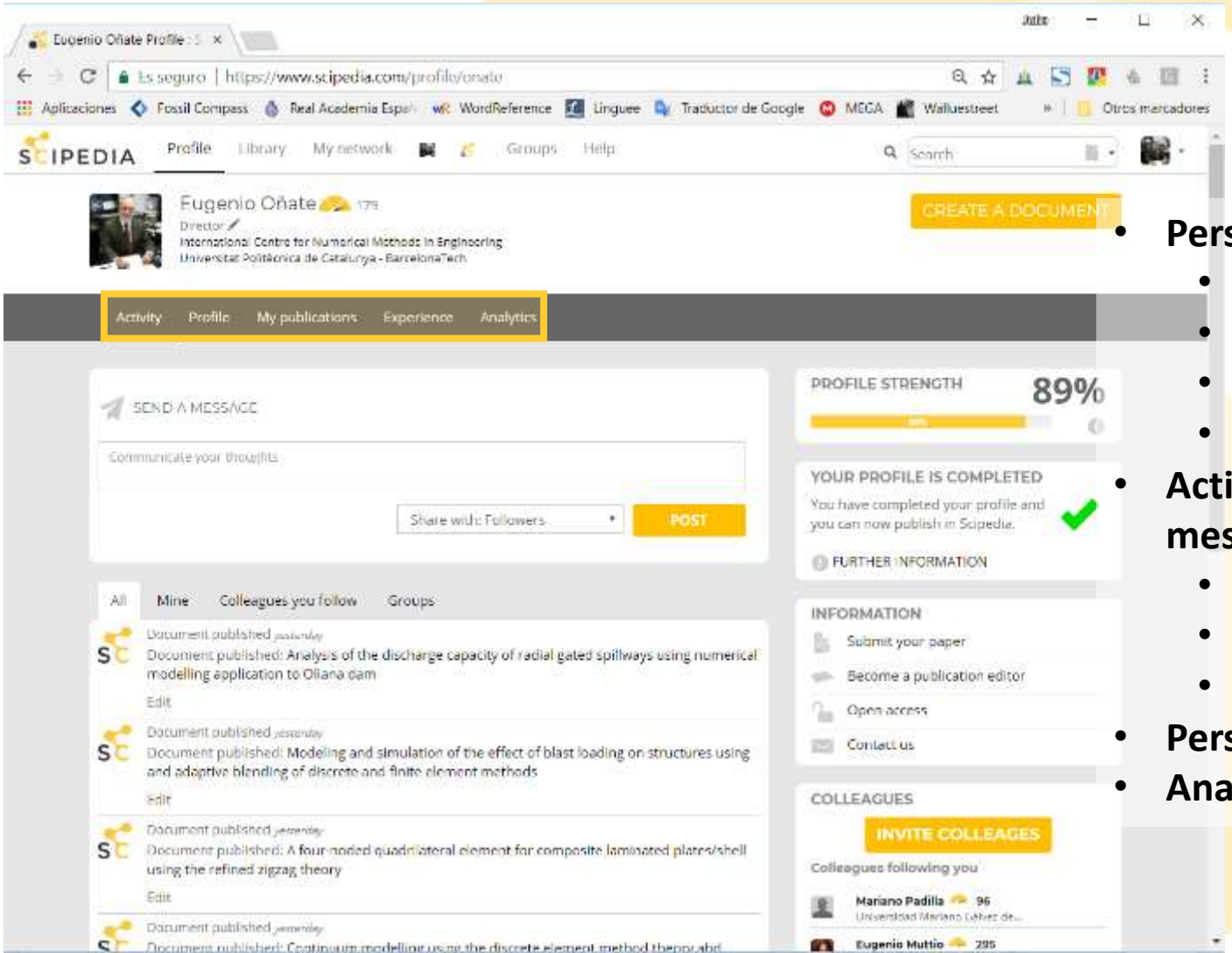
… to institutions?

- Personal / project / community profile
- Thematic / personal / project repositories
- Enriched web publishing
- Online collaborative edition
- Discussion forums / groups
- Open Access / Open Data
- Open peer-reviewed journals



What can Scipedia offer …

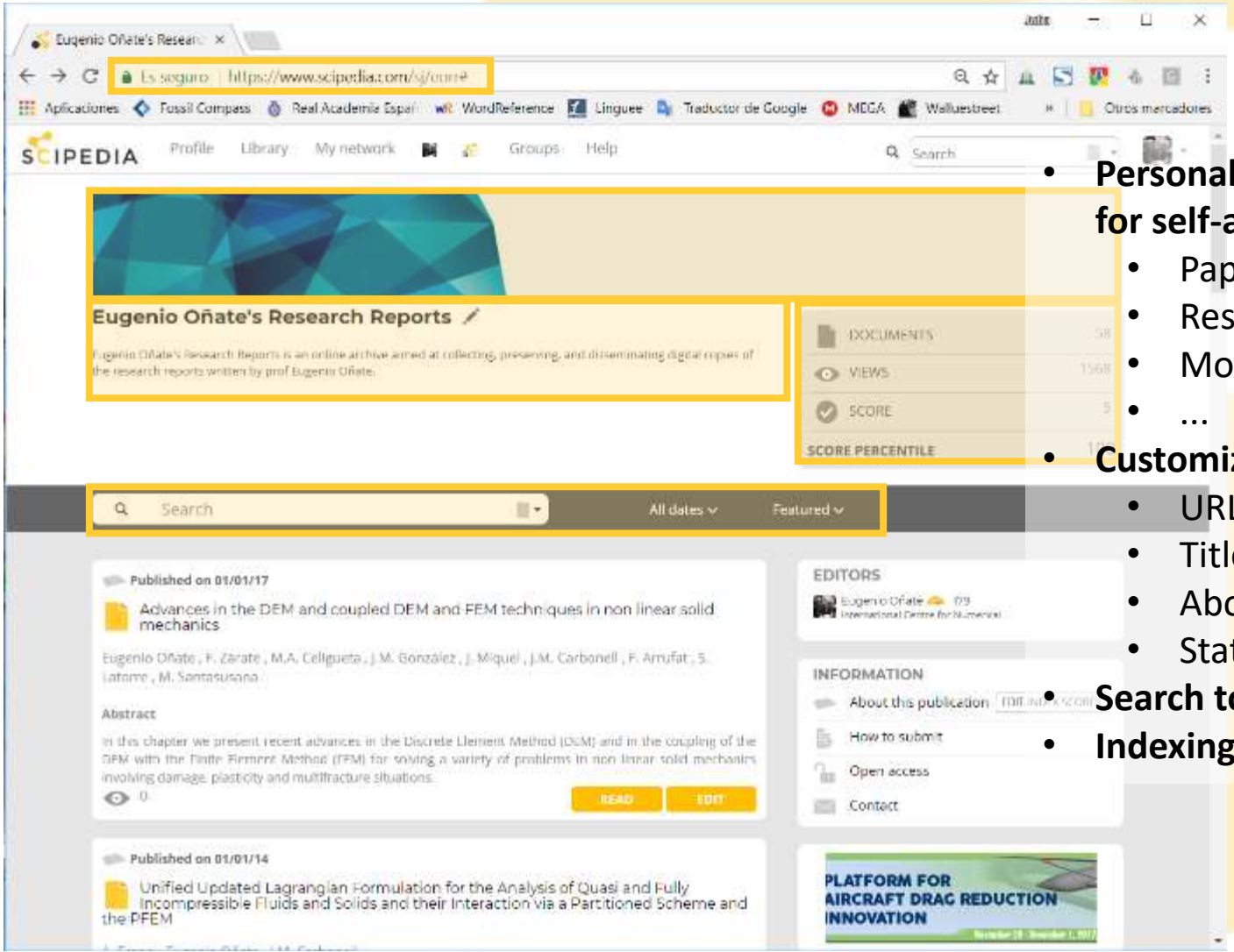
… to researchers?



- **Personal profile**
  - Overview
  - Publications
  - Experience, skills
  - Google Scholar link
- **Activity panel and messaging tools**
  - Public
  - Followers
  - Groups
- **Personal repositories**
- **Analytics**

What can Scipedia offer …

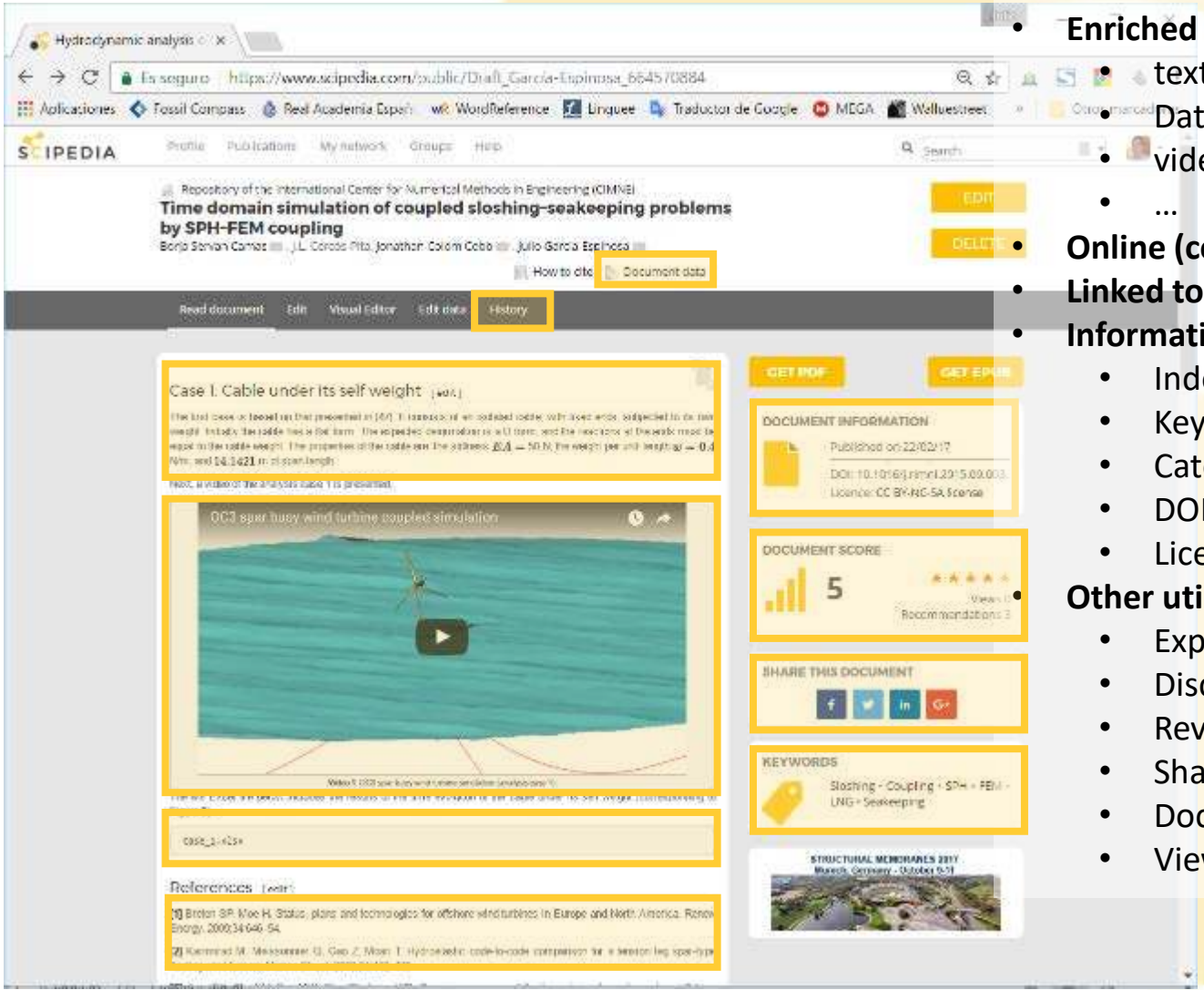
… to researchers?



- **Personal / thematic repositories for self-archiving**:
  - Papers (preprints, …)
  - Research reports
  - Monographs
  - …
- **Customized page**
  - URL
  - Title and banner
  - About and info
  - Statistics
- **Search tools**
- **Indexing support** (metadata)

What can Scipedia offer …

… to researchers?



- **Enriched web format + online editor:**
  - text, references, links
  - Datasets,
  - video
  - …
- **Online (collaborative) edition**
- **Linked to authors/inst. profile**
- **Information**
  - Indexing support (metadata)
  - Keywords (tags)
  - Categories
  - DOI and doc. info
  - Licence
- **Other utilities:**
  - Export to PDF and EPUB
  - Discussion forum
  - Revisions history
  - Share this document
  - Document score
  - Views / recommend.

What can Scipedia offer …

… to researchers?

Every document has a discussion forum (for authors and registered users)

ARCHIVE ALL YOUR WORK
(presentations, conference or seminar videos, data, …)

SCIPEDIA

Your Open Science and
Research Publishing Platform

A few examples of SCIPEDIA capabilities

1. EMBEDDED **VIDEO**:
https://www.scipedia.com/public/Garc%C3%ADa-Espinosa_et_al_2016a

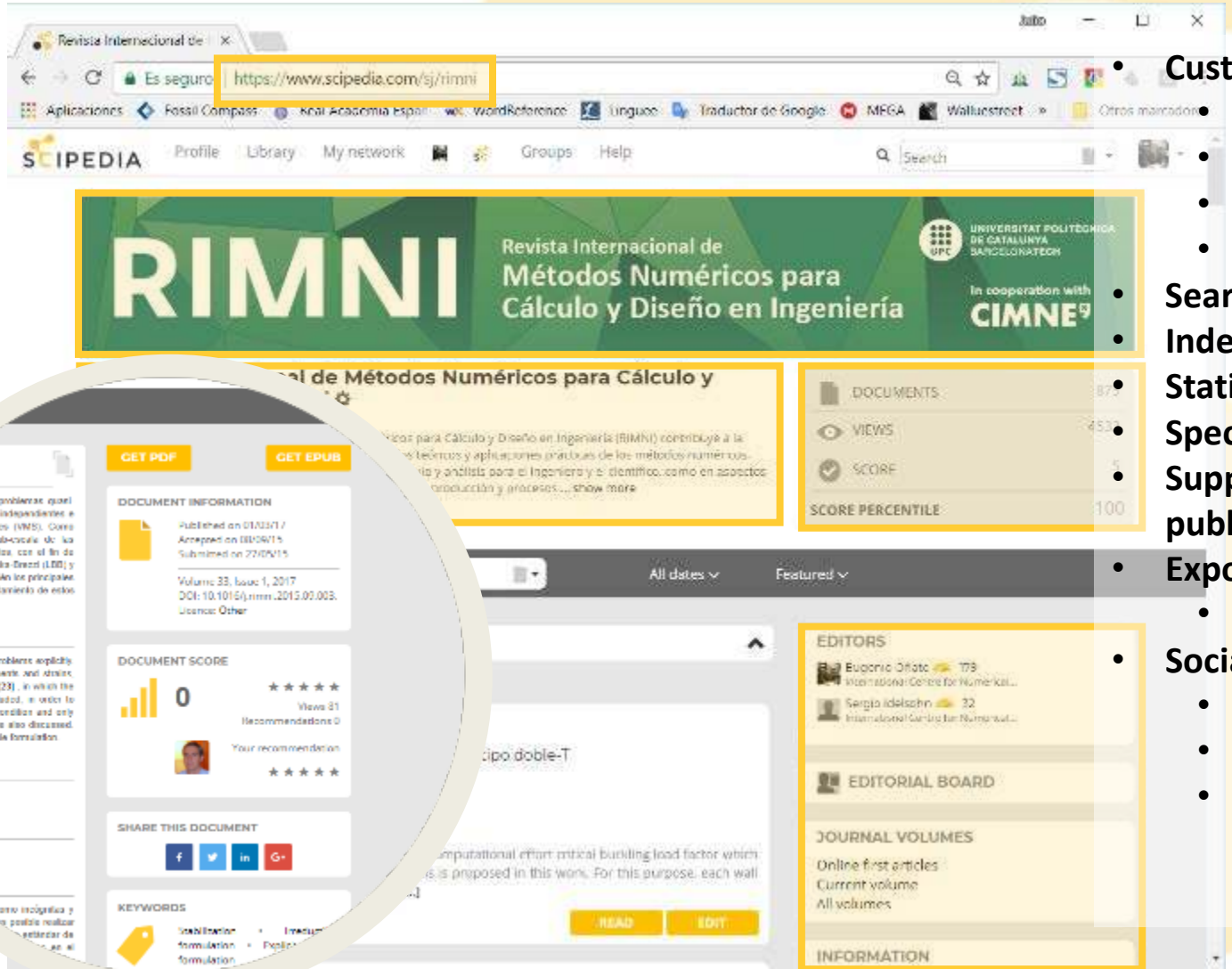
2. EMBEDDED **VIDEO & EXCEL data**:
https://www.scipedia.com/public/Guti%C3%A9rrez_Romero_et_al_2017a

3. COLLECTION of VIDEOS of presentations from a conference (Complas XIII)
https://www.scipedia.com/sj/complasxiii

4. INCLUDES **PPT**, **PDF** and **Prezi** Presentations
https://www.scipedia.com/sj/jgecp

What can Scipedia offer …

… to Open Access journals?



- **Customized homepage**
  - URL
  - Title, banner, about
  - Journal / authors info
  - …
- **Search tools**
- **Indexing support** (metadata)
- **Statistics (altmetrics)**
- **Specialized editorial support**
- **Supports enriched web publishing**
- **Export tools**
  - pdf and epub
- **Social network tools**
  - Share document
  - Discussion page
  - Recommendations

What can Scipedia offer …

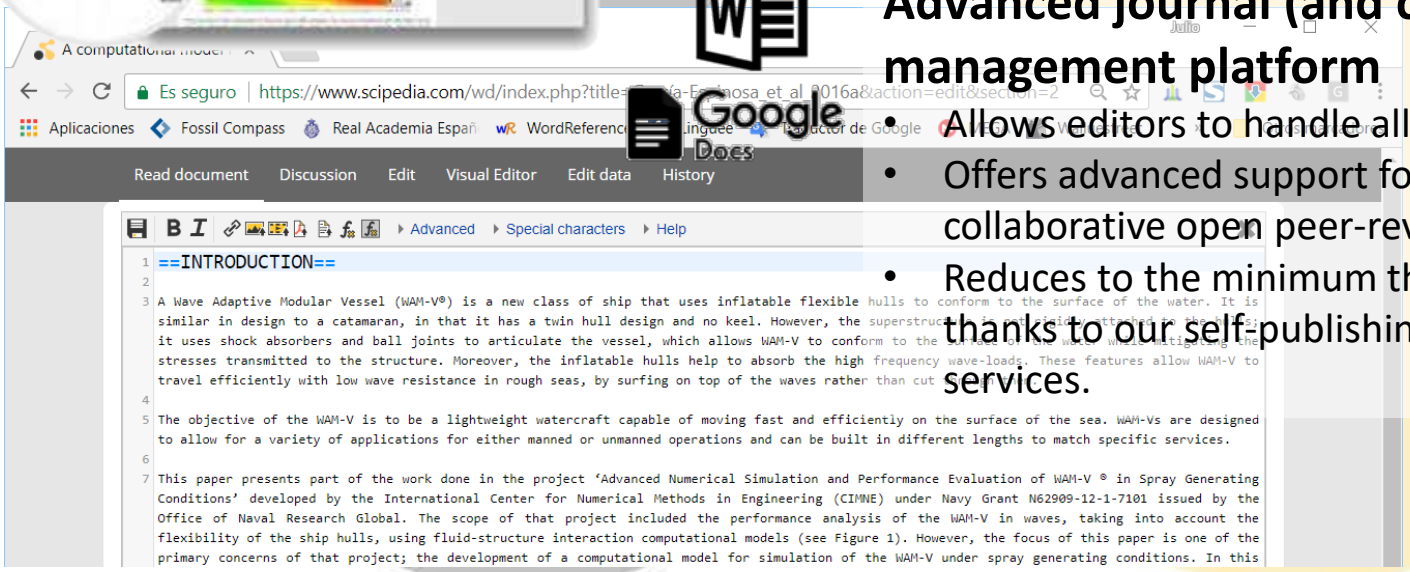
… to Open Access journals?

Enriched web scientific publishing

- Upload your manucript created in LaTeX, Word or Google Docs using Scipedia import tools.
- Use Scipedia's online (collaborative) editor to improve its content and to insert supplementary material such as video, datasets, models and more.

LATEX

Google Docs

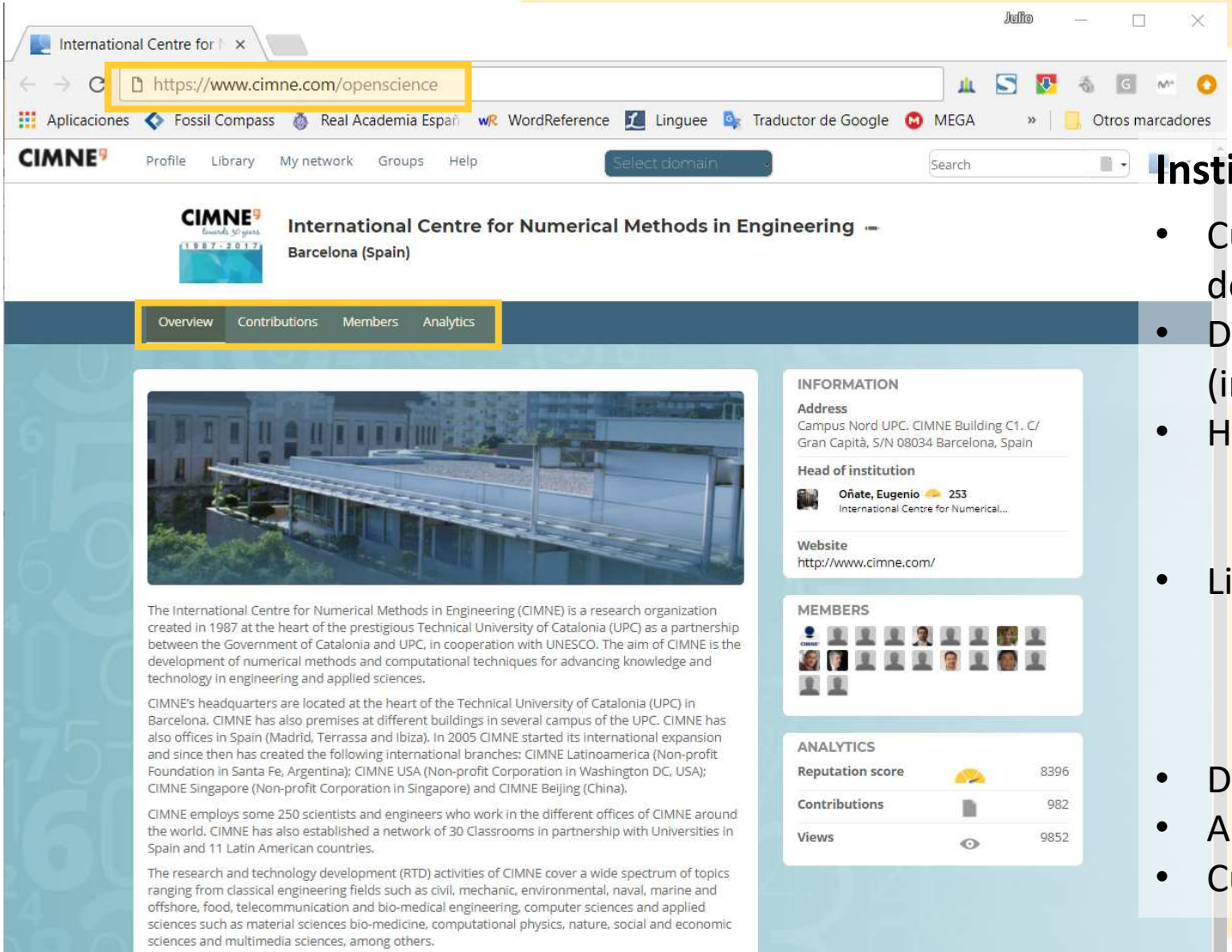


Advanced journal (and congress) management platform

- Allows editors to handle all aspects of publication.
- Offers advanced support for blind peer-review and collaborative open peer-review (interactive).
- Reduces to the minimum the editorial effort, thanks to our self-publishing and automation services.

What can Scipedia offer …

… to institutions?

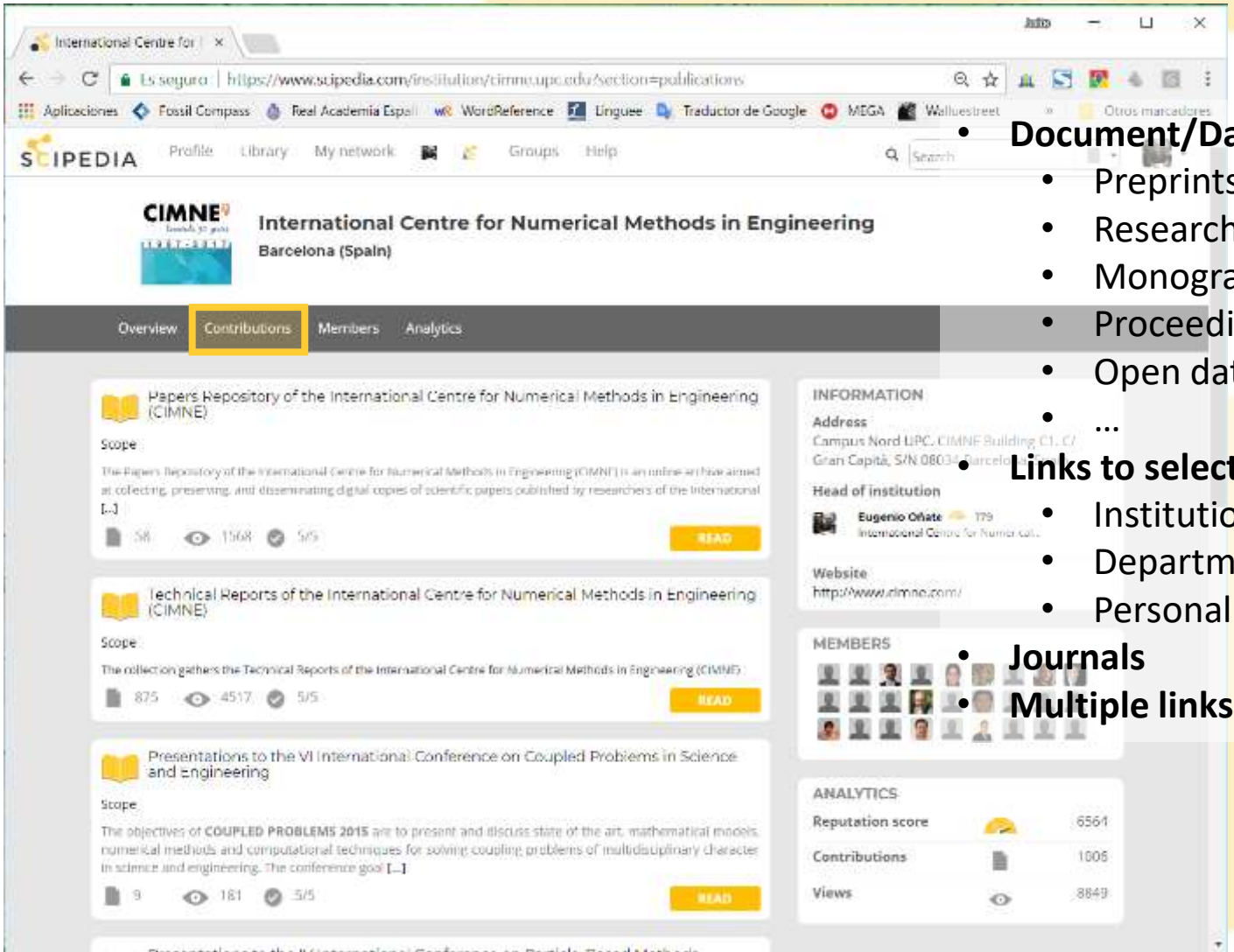


Institutional profile

- Customized layout / design
- Dedicated instance (institutional URL)
- Home page
  - Overview
  - Information
- Linked to repositories
  - Institutional
  - Departments
  - Personal
- Directory (members)
- Analytics
- Curation (edition)

What can Scipedia offer …

… to institutions?

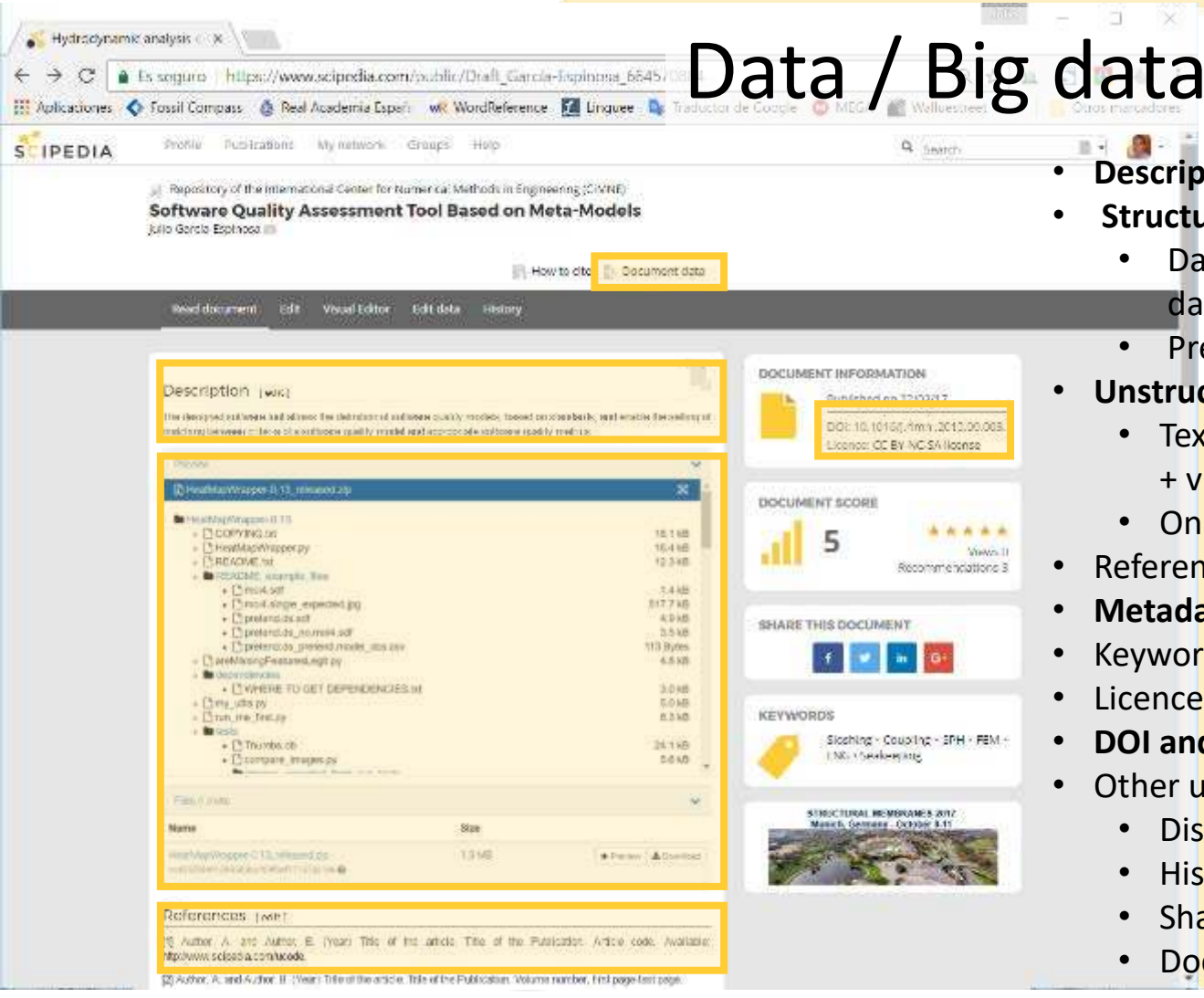


- **Document/Data repositories**
  - Preprints / open access papers
  - Research / Project reports
  - Monographs
  - Proceedings / presentations
  - Open data repositories
  - …
- **Links to selected archives**
  - Institutional
  - Departments / groups
  - Personal
- **Journals**
- **Multiple links to documents**

What can Scipedia offer …

… to institutions?

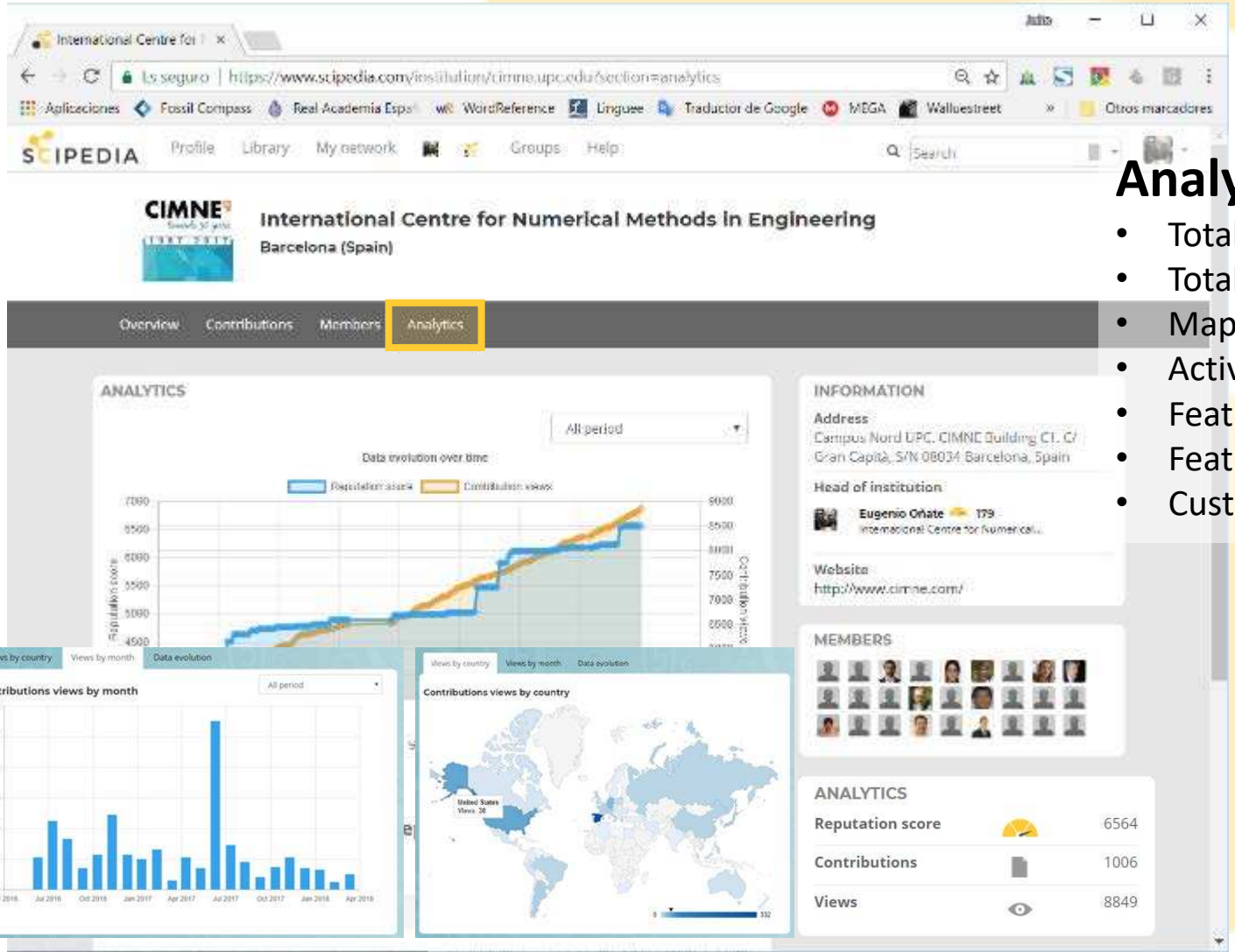
Data / Big data repositories



- **Description**
- **Structured data (templates)**
  - Datasets, Software, Graphs, Video, Big data sets, …
  - Preview (when available)
- **Unstructured data**
  - Text + datasets + + video + pictures + …
  - Online edition
- References / external links
- **Metadata (XML)**
- Keywords (tags)
- Licence
- **DOI and document info**
- Other utilities:
  - Discussion forum
  - History
  - Share this document
  - Document score

What can Scipedia offer …

… to institutions?



Analytics

- Total views
- Total contributions
- Map filters
- Activity index (reputation)
- Featured members
- Featured documents
- Customized …

SCIPEDIA

- **Scipedia Open Science Portal (SOSP)** offers a flexible and reliable **solution for creating/customizing institutional open collaborative platforms**. It includes, among others, the following features: institutional profiles support, interface with institutional CRIS, management system for institutional, personal and community repositories (including big-data), support for profiles of communities or research projects, gamification tools, etc.

- **Scipedia Open Publishing Platform (SOPP)** offers a comprehensive **solution for creating/customizing a corporative/institutional online publishing platform**. It includes, among others, the following features: online journal management system, online edition tools, web publishing tools, import/export tools, basic social network services, management of personal profiles (including Google Scholar link), etc.

https://www.scipedia.com

SCIPEDIA

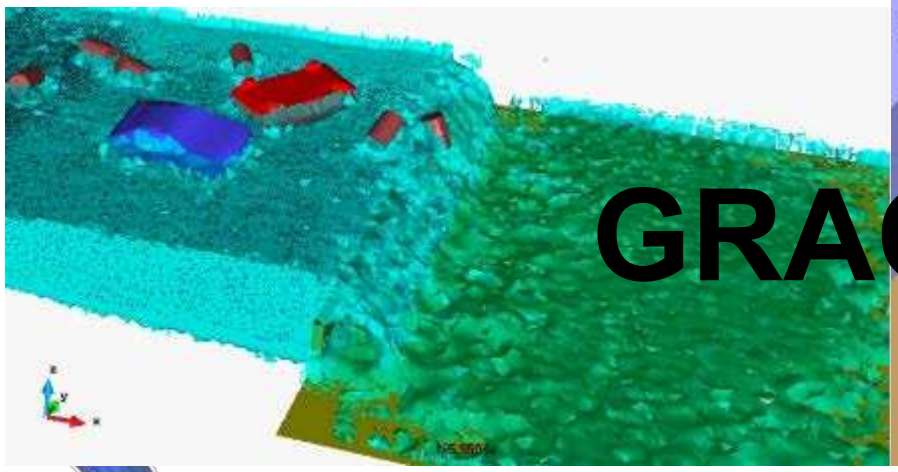
Your Open Science and
Research Publishing Platform

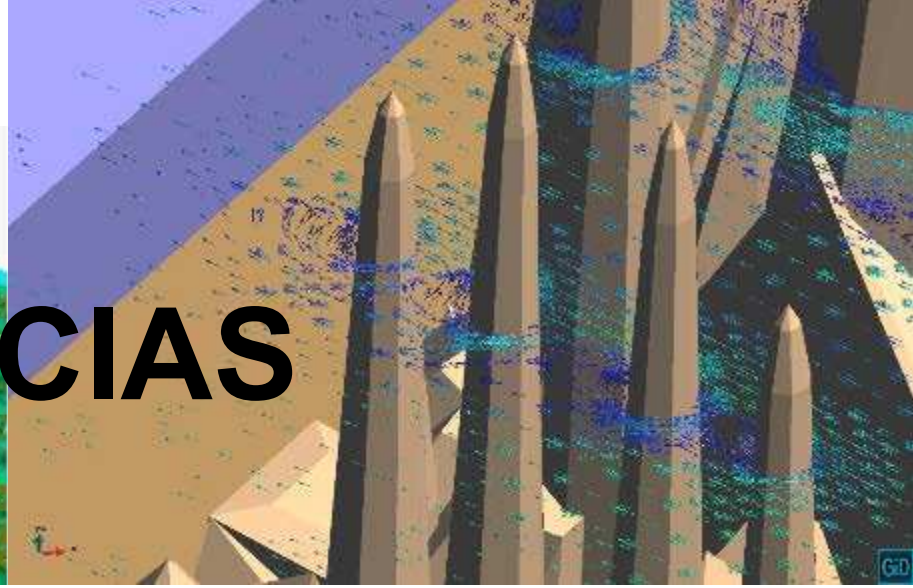
https://www.scipedia.com

For any question, you can contact us at:

info@scipedia.com

CIMNE





GRACIAS

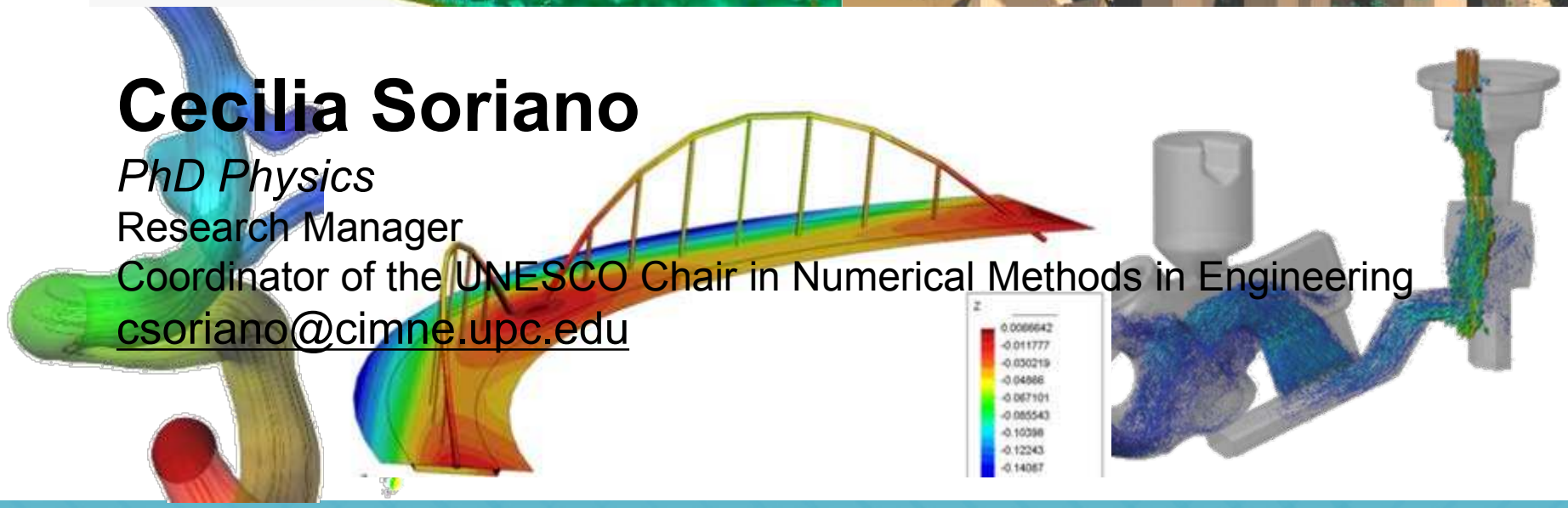
Cecilia Soriano

PhD Physics

Research Manager

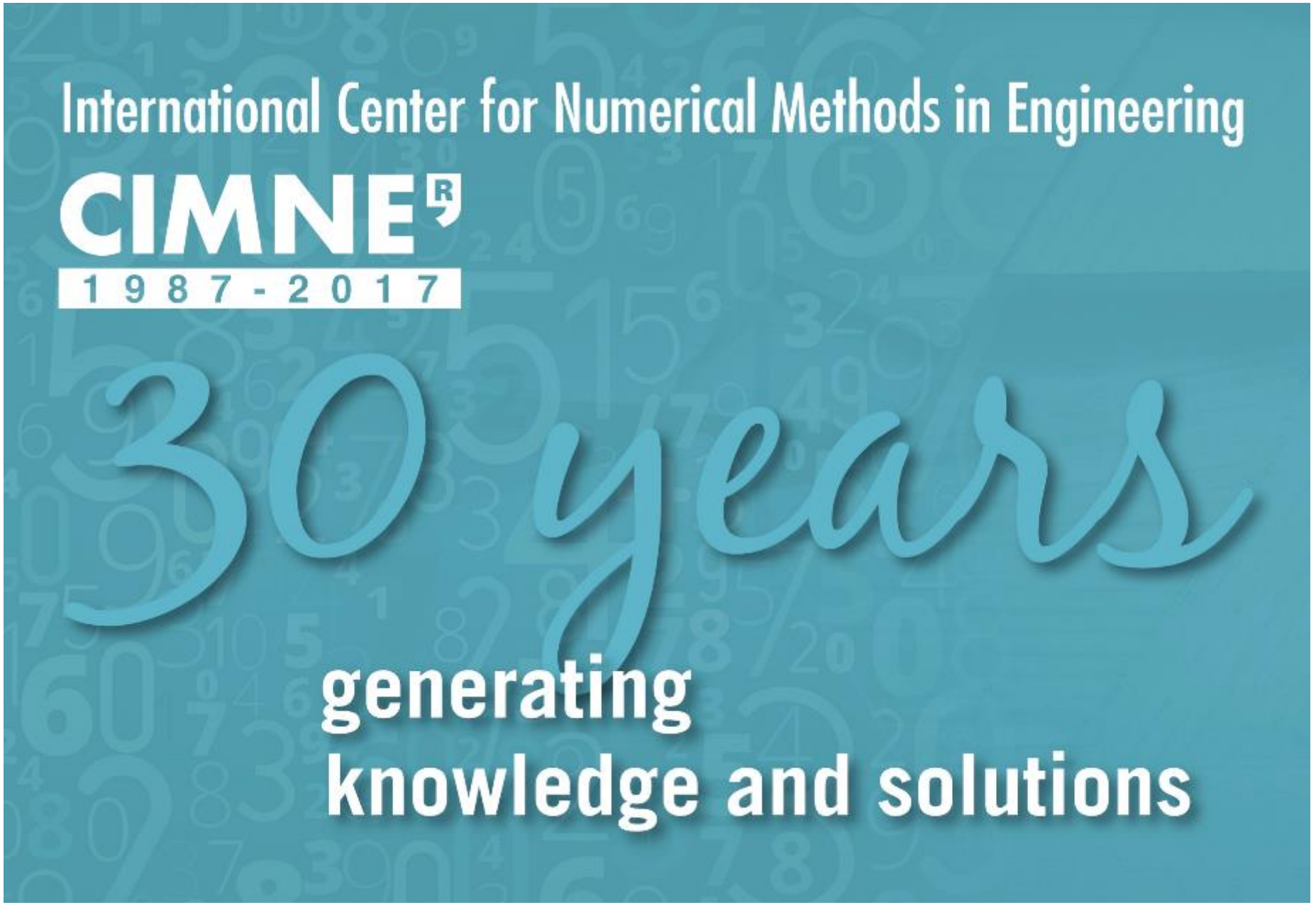
Coordinator of the UNESCO Chair in Numerical Methods in Engineering

csoriano@cimne.upc.edu



A Consortium of: Generalitat de Catalunya; UNIVERSITAT POLITÈCNICA DE CATALUNYA BARCELONATECH

In cooperation with: UNESCO


International Center for Numerical Methods in Engineering
CIMNE
1987-2017
30 years
generating
knowledge and solutions